

EDITORIAL

- 1724 Model Organisms and Human Health
Bruce Alberts
>> Perspective p. 1758; Research Articles
pp. 1775 & 1787

NEWS OF THE WEEK

- 1730 Polio Outbreak Breaks the Rules
1731 Court to Weigh University's Decision
Not to Hire Astronomer
1732 French Nobelist Escapes 'Intellectual
Terror' to Pursue Radical Ideas in China
1733 From *Science*'s Online Daily News Site
1734 Discoverer Asks for Time, Patience Over
Arsenic Bacteria Controversy
1735 From the *Science* Policy Blog

NEWS FOCUS

- 1736 What's Next for Disease Eradication?
Scientists' New Eradication Target:
A Word in Their Lexicon
1740 Altering the Past: China's
Faked Fossils Problem
1742 CIRM: The Good, the Bad, and the Ugly

LETTERS

- 1744 Genetic Future for Florida Panthers
P. Hedrick
Response
W. E. Johnson et al.
Biodiversity Transcends Services
D. P. Faith
Response
C. Perrings et al.
1746 CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.

- 1747 Evolution Since Darwin
M. A. Bell et al., Eds., reviewed by D. P. Mindell
1748 Brain
R. DeSalle et al., curators, reviewed by
A. Rabinowitz and C. E. Schoonover

POLICY FORUMS

- 1749 The Challenge of Feeding Scientific Advice
into Policy-Making
R. Schenkel
1752 Boosting CITES
J. Phelps et al.

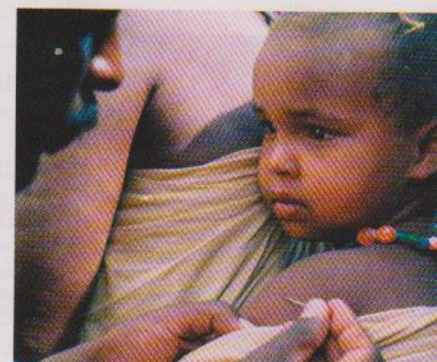
PERSPECTIVES

- 1754 Ubiquitination Inhibits Neuronal Exit
C. Métin and C. Luccardini
>> Report p. 1834
1755 Generating an Atmosphere
D. P. Cruikshank
>> Report p. 1813
1756 Computational Physics in Film
R. Bridson and C. Batty
1758 Revealing the Dark Matter of the Genome
M. Blaxter
>> Editorial p. 1724; Research Articles
pp. 1775 & 1787
1759 Stretching Dielectric Elastomer
Performance
F. Carpi et al.
1761 Germ Cell Genes and Cancer
X. Wu and G. Ruvkun
>> Report p. 1824
1763 Retrospective: Allan Sandage
(1926–2010)
D. Lynden-Bell

SCIENCE PRIZE ESSAY

- 1764 Science 101: Building the Foundations
for Real Understanding
A. Thanukos et al.

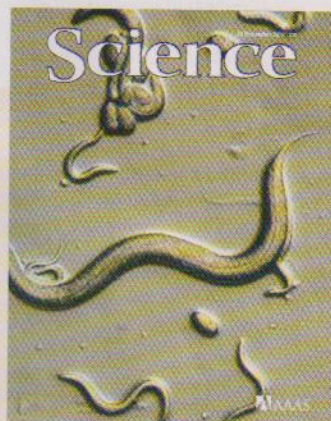
CONTENTS continued >>



page 1736



page 1749



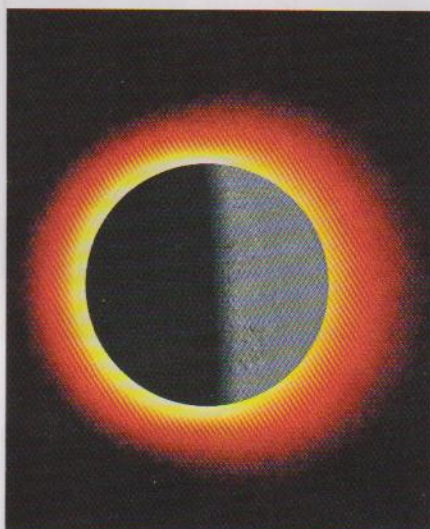
COVER

An adult *Caenorhabditis elegans* nematode, ~1 millimeter long, pictured along with eggs and young worms. *C. elegans* is the first multicellular organism to have its genome fully sequenced, followed by the fruit fly *Drosophila melanogaster*. High-resolution genomic analyses presented on pages 1775 and 1787 provide new insights into the organization, structure, and function of the genomes of these organisms. See the related Editorial on page 1724 and Perspective on page 1758.

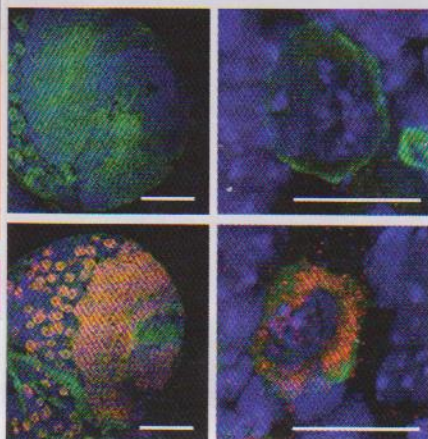
Image: Carolina Biological Supply, Co/Visuals Unlimited, Inc.

DEPARTMENTS

- 1722 This Week in *Science*
1725 Editors' Choice
1726 *Science* Staff
1729 Random Samples
1766 AAAS News & Notes
1839 New Products
1840 *Science* Careers



pages 1755 & 1813



pages 1761 & 1824

REVIEW

- 1768 Has the Microbiota Played a Critical Role in the Evolution of the Adaptive Immune System?
Y. K. Lee and S. K. Mazmanian

BREVIA

- 1774 Decreased Clearance of CNS β -Amyloid in Alzheimer's Disease
K. G. Mawuenyega et al.
Alzheimer's disease is associated with reduced β -amyloid clearance from the brain.

RESEARCH ARTICLES

- 1775 Integrative Analysis of the *Caenorhabditis elegans* Genome by the modENCODE Project
M. B. Gerstein et al.
Extensive analysis of the *Caenorhabditis elegans* genome reveals regions highly occupied by multiple transcription factors.
- 1787 Identification of Functional Elements and Regulatory Circuits by *Drosophila* modENCODE
The modENCODE Consortium et al.
The *Drosophila* modENCODE project demonstrates the functional regulatory network of flies.
>> Editorial p. 1724; Perspective p. 1758

REPORTS

- 1797 High-Flux Solar-Driven Thermochemical Dissociation of CO_2 and H_2O Using Nonstoichiometric Ceria
W. C. Chueh et al.
Solar heating of ceric oxide enables a cycle for conversion of carbon dioxide to carbon monoxide or water to hydrogen.
- 1801 Spin Hall Effect Transistor
J. Wunderlich et al.
Manipulation of the spin degree of freedom of electrons is used to build a spin transistor without magnetic materials.
- 1804 Brownian Motion of Stiff Filaments in a Crowded Environment
N. Fakhri et al.
The thermal motion of single-walled carbon nanotubes is used to track the dynamic motion of stiff macromolecules.
- 1807 Tunable Field Control Over the Binding Energy of Single Dopants by a Charged Vacancy in GaAs
D. H. Lee and J. A. Gupta
The electrostatic field of manganese atoms in gallium arsenide depends on its distance from a nearby arsenic vacancy site.

- 1810 Dynamics of Magnetic Domain Walls Under Their Own Inertia
L. Thomas et al.
The current-induced motion of magnetic domain walls is controlled by the length of the current pulse.
- 1813 Cassini Finds an Oxygen-Carbon Dioxide Atmosphere at Saturn's Icy Moon Rhea
B. D. Teolis et al.
Rhea's atmosphere is maintained by chemical decomposition of surface water ice under irradiation from Saturn's magnetosphere.
>> Perspective p. 1755
- 1816 Structures of C3b in Complex with Factors B and D Give Insight into Complement Convertase Formation
F. Forneris et al.
A double-safety-catch mechanism controls amplification of the complement cascade during immune responses.
- 1820 Hsp90 and Environmental Stress Transform the Adaptive Value of Natural Genetic Variation
D. F. Jarosz and S. Lindquist
A molecular chaperone both buffers and potentiates the adaptive nature of genetic variation in yeast.
- 1824 Ectopic Expression of Germline Genes Drives Malignant Brain Tumor Growth in *Drosophila*
A. Janic et al.
Inactivation of germline genes suppresses brain tumor growth in *Drosophila*.
>> Perspective p. 1761
- 1827 A Pollen Factor Linking Inter- and Intraspecific Pollen Rejection in Tomato
W. Li and R. T. Chetelat
The inability to cross with distant relatives in the nightshade family is linked to mechanisms preventing self-pollination.
- 1830 The Social Sense: Susceptibility to Other Beliefs in Human Infants and Adults
A. M. Kovács et al.
Knowledge of what others believe is present in 7-month-old infants.
- 1834 Siah Regulation of Pard3A Controls Neuronal Cell Adhesion During Germinal Zone Exit
J. K. Famulski et al.
A ubiquitination cascade regulates formation of cell adhesions that immature neurons require in the developing mouse brain.
>> Perspective p. 1754